

Notice of Allowability

Application No.

10/045,393

Examiner

Phuong Phu

Applicant(s)

SHIN ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the election filed on 10/5/05.
2. ☒ The allowed claim(s) is/are 1,3,5-23 and 31-52.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

This Office Action is responsive to the Election filed on 10/5/05. Accordingly, claims 1-23 and 31-45 were elected and claims 24-30 were canceled.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Maurice Pirio on 10/27/05.

The application has been amended as follows:

IN THE SPECIFICATION:

The paragraph "This application claims the benefit ... by reference in their entirety.", which is started from line 4, page 1 to line 12, page 2, is replaced with the following paragraph:

--This application claims the benefit of U.S. Provisional Application No. 60/252,724 entitled "METHOD AND APPARATUS FOR STORAGE I/O WITH FULL-DUPLEX ONE-TIME BLOCK I/O TRANSFER AND ADAPTIVE PAYLOAD SIZING," filed November 22, 2000, and is related to U.S. Patent Application No. 10/037,168 entitled "METHOD AND SYSTEM FOR PLESIOSYNCHRONOUS COMMUNICATIONS WITH NULL INSERTION AND REMOVAL"; U.S. Patent Application No. 10/045,393, entitled "METHOD AND SYSTEM FOR TRANSITION-CONTROLLED SELECTIVE BLOCK INVERSION COMMUNICATIONS"; U.S. Patent Application No. 10/035,591 entitled "COMMUNICATIONS ARCHITECTURE: FOR STORAGE-BASED DEVICES"; U.S. Patent

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Application No. 10/036,591 entitled "METHOD AND SYSTEM FOR PACKET ORDERING BASED ON PACKET TYPE"; U.S. Patent Application No. 10/036,794 entitled "METHOD AND SYSTEM FOR HOST HANDLING OF COMMUNICATIONS ERRORS"; U.S. Patent Application No. 10/045,606 entitled "METHOD AND SYSTEM FOR DYNAMIC SEGMENTATION OF COMMUNICATIONS PACKETS"; U.S. Patent Application No. 10/045,348 entitled "METHOD AND SYSTEM FOR ASYMMETRIC PACKET ORDERING BETWEEN COMMUNICATIONS DEVICES"; U.S. Patent Application No. 10/053,461 entitled "METHOD AND SYSTEM FOR COMMUNICATING CONTROL INFORMATION VIA OUT-OF-BAND SYMBOLS"; U.S. Patent Application No. 10/045,625 entitled "METHOD AND SYSTEM FOR INTEGRATING PACKET TYPE INFORMATION WITH SYNCHRONIZATION SYMBOLS"; U.S. Patent Application No. 10/035,911 entitled "METHOD AND SYSTEM FOR NESTING OF COMMUNICATIONS PACKETS"; U.S. Patent Application No. 10/045,297 entitled "COMMUNICATIONS ARCHITECTURE FOR MEMORY-BASED DEVICES"; U.S. Patent Application No. 10/045,600 entitled "METHOD AND SYSTEM FOR DC-BALANCING AT THE PHYSICAL LAYER"; and U.S. Patent Application No. 10/045,601 entitled "MULTISECTION MEMORY BANK SYSTEM", which are all hereby incorporated by reference in their entirety.--

IN THE CLAIMS:

-Claim 1 is amended as follows:

1. (Currently Amended) A method for encoding data comprising:
receiving a block of two or more symbols; determining a running disparity of previously transmitted symbols; determining a block disparity of the received block of symbols; and when the block disparity and the running disparity are in the same direction, changing the encoding of

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the block of symbols so that the running disparity after the block of symbols with the changed encoding is transmitted is better than if the block of symbols without the changed encoding was transmitted; wherein the changing of the encoding includes modifying one of the symbols in the block so that it is an out-of-band symbol and inverting the other symbols in the block and wherein the modifying of the one symbol of the block includes inverting alternate bits of the one symbol.

-Claim 2 is canceled.

-Claim 3 is amended as follows:

3. (Currently Amended) The method of claim [2] 1 wherein the inverting of the other symbols in the block includes inverting all bits of the other symbols.

-Claim 4 is canceled.

-Claims 46-52 are newly added as follows:

46. (New) A method for encoding data comprising:
receiving a block of two or more symbols; determining a running disparity of previously transmitted symbols; determining a block disparity of the received block of symbols; and when the block disparity and the running disparity are in the same direction, changing the encoding of the block of symbols so that the running disparity after the block of symbols with the changed encoding is transmitted is better than if the block of symbols without the changed encoding was transmitted wherein the symbols in the received block have been encoded using transition

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optimized encoding and wherein transition optimized encoding encodes a code by inverting alternate bits of the code and adding a bit indicating whether alternate bits of the code have been inverted when the number of transitions in the code does not meet a criterion.

47. (New) The method of claim 46 wherein the criterion is that the inverting of the alternate bits will result in more transitions.

48. (New) The method of claim 46 wherein the criterion is that the inverting of the alternate bits will result in less transitions.

49. (New) The method of claim 46 including when the running disparity is neutral, not changing the encoding of the block of symbols.

50. (New) The method of claim 46 including when the block disparity and the running disparity are not in the same direction, not changing the encoding of the block of symbols.

51. (New) The method of claim 46 wherein running disparity is the difference between total number of bits with a 1-value anti bits with a 0-value in symbols that have been transmitted.

52. (New) The method of claim 46 wherein running disparity is the difference between the number of transmitted blocks with more bits with 1-values than with 0-values and the number of transmitted blocks with more bits with 0-values than with 1-values.

REASONS FOR ALLOWANCE

2. Claims 1, 3, 5-23 and 31-52 are allowed.
3. The following is an examiner's statement of reasons for allowance:

References 5663724, 6198413, 6430230, 6188337, 5999571 and 5974464 are cited because they are pertinent to the claimed invention.

-Regarding to independent claim 1, none of prior art of record teaches or suggest a method for encoding data wherein the method comprises procedures of changing the encoding of a received block of symbols, when a block disparity of the received block of symbols and a running disparity of previously transmitted symbols are in the same direction, so that the running disparity after the block of symbols with the changed encoding is transmitted is better than if the block of symbols without the changed encoding was transmitted; wherein the changing of the encoding includes modifying one of the symbols in the block so that it is an out-of-band symbol and inverting the other symbols in the block and wherein the modifying of the one symbol of the block includes inverting alternate bits of the one symbol.

-Regarding to independent claims 13 and 31, none of prior art of record teaches or suggest a method and associated system for encoding a block of symbols wherein the method/system comprises procedures/devices of modifying one of the symbols in the block to indicate that the block disparity of the symbols in the block is being changed when the block of disparity is to be changed; and modifying the other symbols in the block to effect the changing of the block disparity of the symbols in the block.

-Regarding to independent claim 42, none of prior art of record teaches or suggest an apparatus for encoding a block of symbols wherein the apparatus comprises means of modifying the symbols in the block in such a way that one symbol of the block is modified to indicate that

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the block disparity of the block is being changed; and the other symbols in the block is modified to effect the changing of the block disparity.

-Regarding to independent claim 46, none of prior art of record teaches or suggest a method for encoding data wherein the method comprises procedures of changing the encoding of a received block of symbols, when a block disparity of the received block of symbols and a running disparity of previously transmitted symbols are in the same direction, so that the running disparity after the block of symbols with the changed encoding is transmitted is better than if the block of symbols without the changed encoding was transmitted wherein the symbols in the received block have been encoded using transition optimized encoding and wherein transition optimized encoding encodes a code by inverting alternate bits of the code and adding a bit indicating whether alternate bits of the code have been inverted when the number of transitions in the code does not meet a criterion.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Phu whose telephone number is 571-272-3009. The examiner can normally be reached on M-F (6:30-2:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phuong Phu
Phuong Phu
10/28/05

PHUONG PHU
PRIMARY EXAMINER

Phuong Phu
Primary Examiner
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